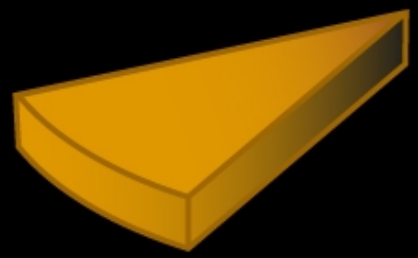
Session 612

Direct to Web

Miguel Sanchez
WebObjects Engineer
Rapid Development Team

Amazing Statistics!

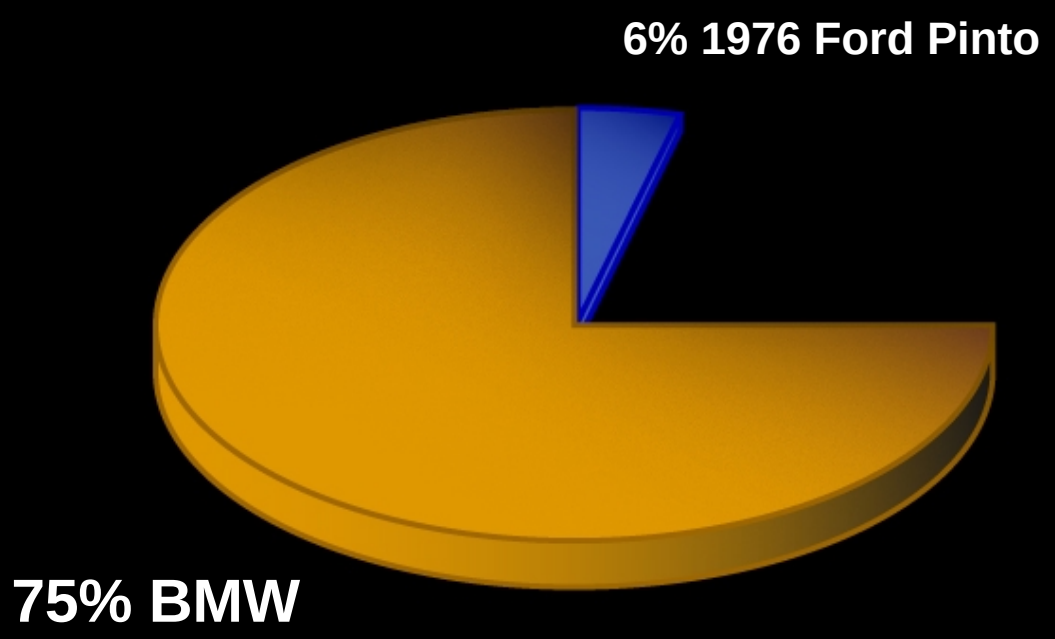


15% BMW

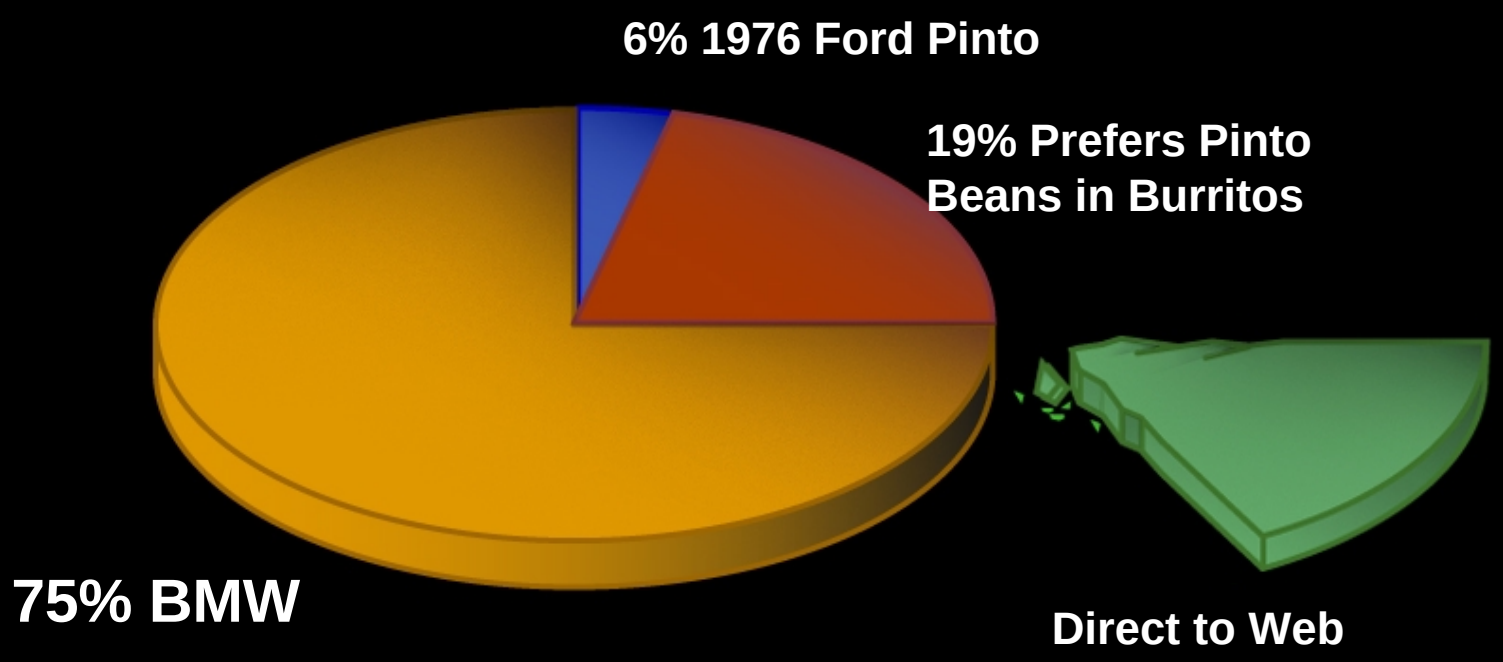
Amazing Statistics!

75% BMW

Amazing Statistics!



Amazing Statistics!



Introduction

- Direct to Web jumpstarts your WebObjects applications
- Direct to Web applications are highly customizable

What You'll Learn

- Architecture of a Direct to Web application
- Rule System and "rule based" approach to developing applications
- Customizing Direct to Web applications

What Is Direct to Web

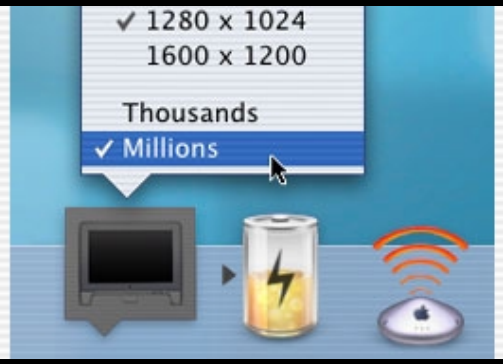
- Infrastructure that makes developing WebObjects applications easier
- Pre-built functionality that can be customized
- Not an application, but a set of frameworks and tools
- Rule based system for WebObjects applications

A Direct to Web Application

- Traditional WebObjects application
  - HTML
  - Database Access (EOF)
- Started with pre-built layouts and behavior
- From zero to extensive customization
- Great Runtime flexibility

Demo

Default Direct to Web Application



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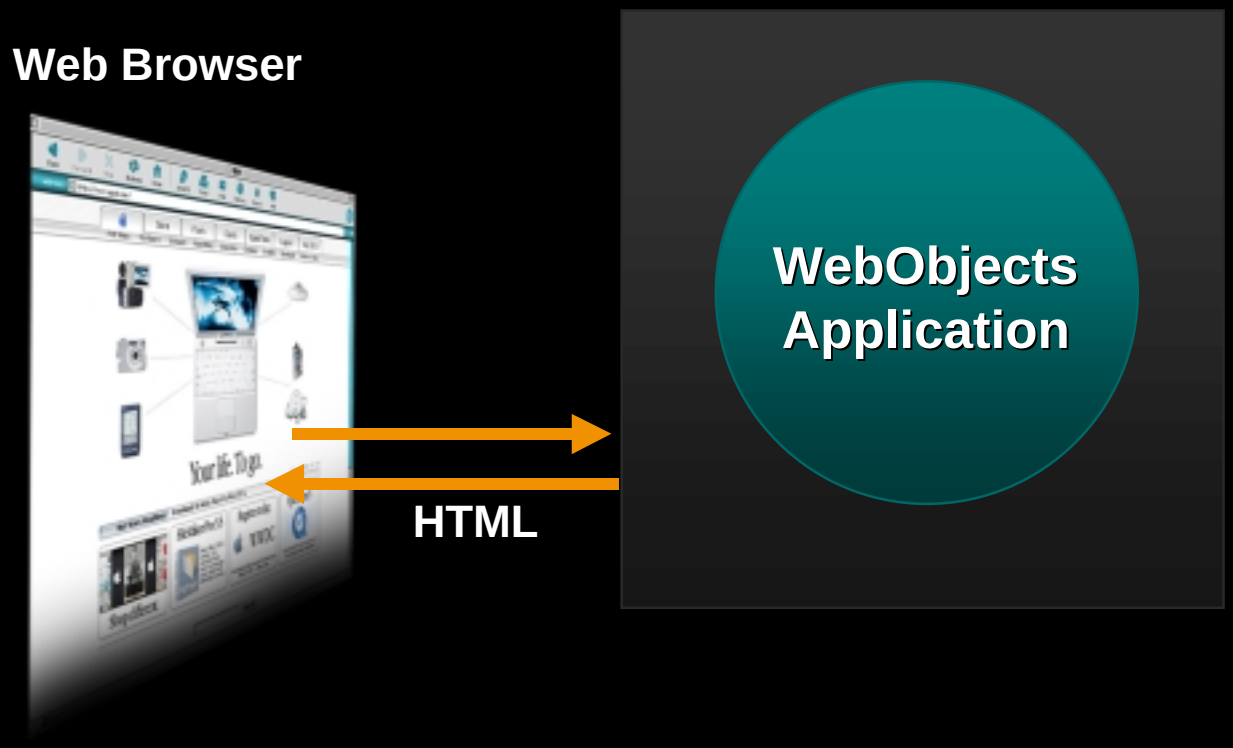
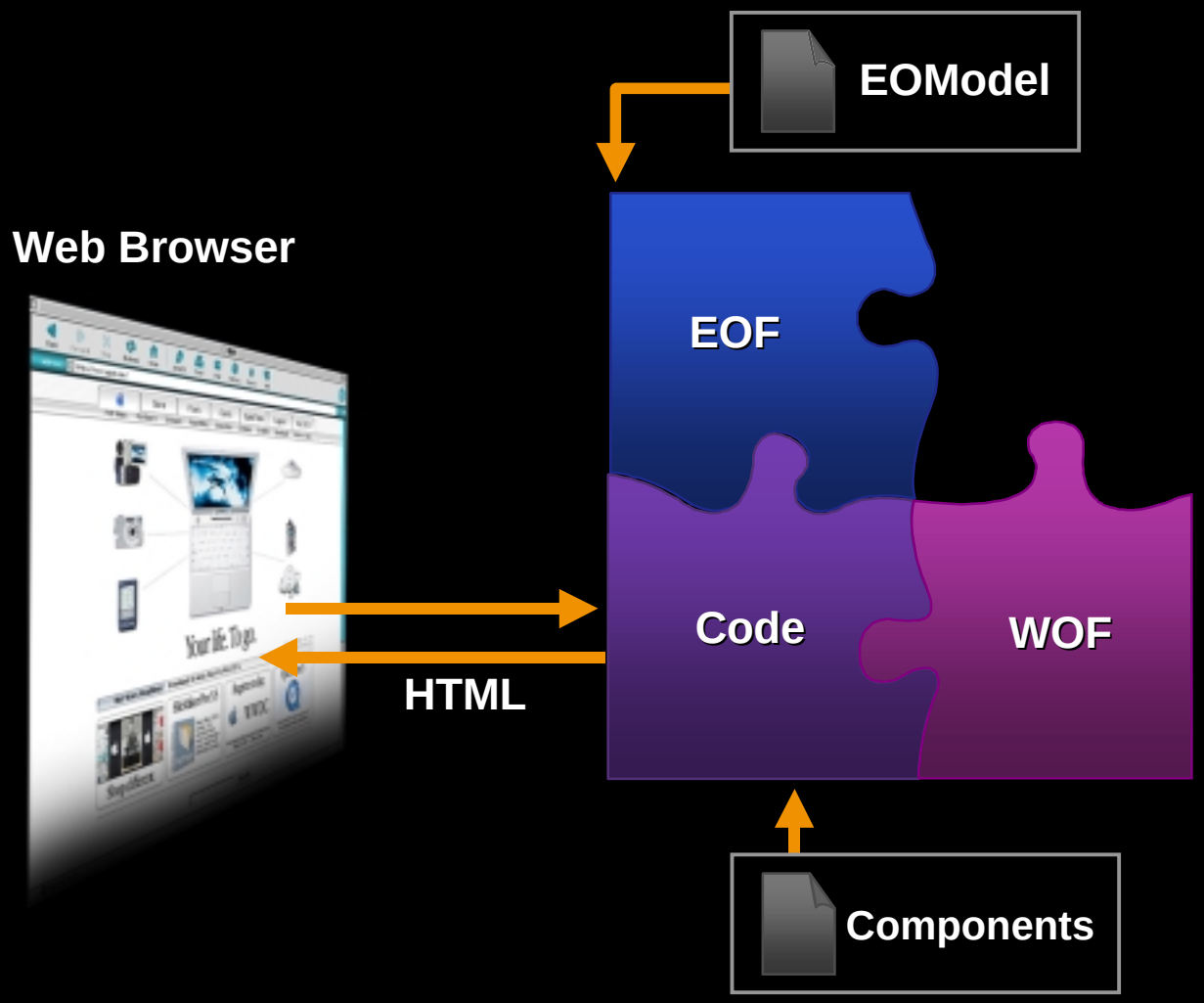
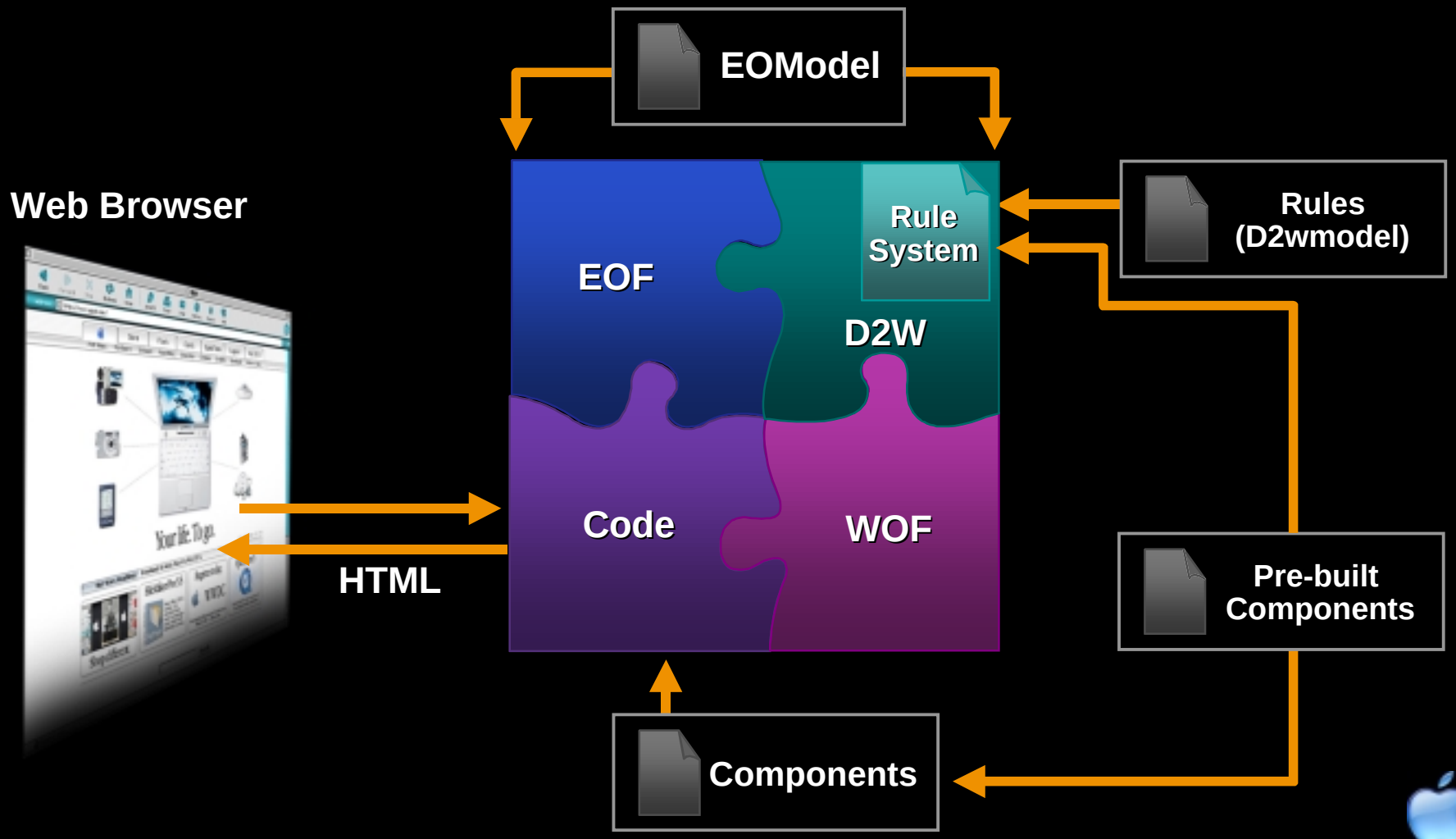
Direct to Web Architecture



Direct to Web Architecture



Direct to Web Architecture



The Rule System

- Consists of
  - A Rule set (files loaded into memory)
  - Classes to derive values from the set
- Answers questions given a current set of conditions

  Examples:
  - What is the background color?
  - What's the display name for this property?
  - Which component should I use?

Rule Evaluation—D2WContext

- The Rule System needs to know the state of the app
  - Task—list, edit, query, etc.
  - Entity—from the eomodel
  - Property—of the entity

D2WContext

Entity = ‘User
Task = ‘Edit’
Property = ‘password
…

Rule Evaluation—Deriving Values

- Once initialized, you can ask the context to derive values
  - What is the value of backgroundColor?
  - What is displayNameForProperty?
- The context uses its state to find the appropriate value in the rule set (“fires” rules)

Example Rule Set

(task = ‘Edit’)
AND
(entity = ‘Bug’)
→ pageName = ‘MyEditPage’

(property = ‘name’)
AND
(entity = ‘User’)
→ localizedName = ‘nombre’

(task = ‘List)
AND
(Entity = ‘User)
→ tableColor = ‘Red’

Example: Deriving Values

D2WContext
Entity = ‘User’
Property = ‘name’

What is localizedName?

(property = ‘name’)
AND
(entity = ‘User’)

→ **localizedName = ‘nombre’**

d2wContext.localizedName = ‘nombre’

The Essence of Direct to Web

- Generate HTML using WebObjects component model
  - Pre-built components normal WOComponents
    - DirectToWebEditPage.html
    - DirectToWebEditPage.wod
- Use ‘derived values’ when configuring your components
  - wod files have bindings to derived values

Without Direct to Web

UserEditPage.html

```
HTML .....
<TD>
        Name:
        <WEBOBJECT NAME=String1> ....
</TD>
 HTML....
```

UserEditPage.wod

```
String1: WOString {
        value = currentObject.name
}
```

With Direct to Web

DirectToWebEditPage.html

```
HTML .....
<TD>
        <WEBOBJECT NAME = PropertyName> </>:
        <WEBOBJECT NAME = FieldValue> </>
</TD>
 HTML....
```

DirectToWebEditPage.wod

```
PropertyName : WOString {
        value = d2wContext.displayNameForProperty
}
```

Direct to Web Templates

- Pre-built pages that execute common tasks
  - Query
  - Edit
  - List
- Automatically adapt to the database model being used
- Use the Rule System to get information at runtime
- Can be customized at various levels

Customizing Templates

- Configure default pages and components
  - WebAssistant applet
- Modify HTML of default templates
  - WebObjects Builder
- Plug in your own components into templates
  - Custom property level components

Demo

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Customizing Direct to Web Apps

- Rules
- D2WCustomComponent
- Java API to invoke pages
- Named Configurations
- Java API to extend rules

Customizing Apps With Rules

- Rules are stored in d2wmodel files
  - user.d2wmodel : WebAssistant
  - d2w.d2wmodel : Rule Editor
- D2WContext: Entry point to Rule System
- Use derived values in wod files via d2wContext

```
PropertyName : WOString {
    value = d2wContext.displayNameForProperty
}
```

D2WCustomComponent

- Plug in your own property-level components
- Receive two bindings
  - object
  - key

```
myString =
(String)NSKeyValueCoding.Utility.valueForKey(object,key)
```

- Use WebAssistant (or write rules) to configure a property to use your component

Direct to Web Java API

- Instantiate and configure Direct to Web pages from code
- D2W.factory()

```
D2W.factory().editPageForEntityNamed(entityName,session)
```

- Factory returns pages that are configured with interfaces
  - EditPageInterface
  - ListPageInterface
  - QueryPageInterface

Direct to Web API Example

```
import com.webobjects.directtoweb.*;
...

public WOComponent returnAListPageMethod (String e) {

        ListPageInterface result = null;

        result =
                D2W.factory().listPageForEntityNamed(e,session());

        result. setDataSource(aDatasource);

        result. setNextPage(aReturnPage);

        return (WOComponent) result;
}
...
```

Direct to Web API Example

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        result. setDataSource(aDatasource);

        result. setNextPage(aReturnPage);

        return (WOComponent) result;
}
...
```

Named Configurations

- Allow use of one template in various configurations

  Example:

  – in SimpleQuery display bug title and project

  – in AdvancedQuery display all fields

- Named Configurations are called with code

```
D2W.factory().pageForConfigurationNamed("SimpleQuery",session)
```

Integrating Code and Rules

- You can calculate the value of a rule with code

(task = ‘Edit’) AND
(entity = ‘Bug’) AND
(property = ‘title’)

→

propertyName =
localizedPropertyValue

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Integrating Code and Rules

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(task = ‘Edit’) AND
(entity = ‘Bug’) AND
(property = ‘title’)

→

propertyName =
localizedPropertyName

- The method is implemented in a subclass of DefaultAssignment

DefaultAssignment Subclass Example

```
public class MyAssignment extends DefaultAssignment {
...
public String localizedPropertyName() {
...
  currentKey =  _context.propertyKey();

  currentSession = _context.valueForKey(D2WModel.sessionKey);

...
        // CALCULATE VALUE
```

DefaultAssignment Subclass Example

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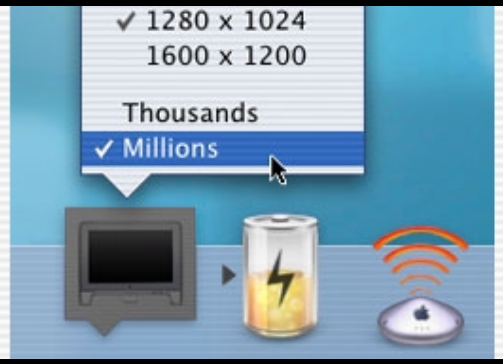
Demo

Direct to Web API



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WebObjects Engineer
Rapid Development Team

Guest Speaker

Patrice Gautier
Chief Technology Officer
Netstruxr

NetStruxr Background

- Provides Fortune 500 companies with a B2B solution for managing Real Estate Procurement activities
- Typical Transaction length is three to six months
- Very complex business process to model

How Complex?

- 13 EOModels
- 153 Custom EOs + 63 Shared EOs + 65 Join Table EOs = 281 EOs
- Three Production Applications generating over 700 different pages
- Three Internal Applications for reporting, help and content management, bug tracking and customer service

Direct to Web Advantage

- 95% of web pages generated with Direct to Web
- Amazingly the entire look and feel of those pages is controlled by 18 custom templates and ~2200 rules or about three rules per page!

NetStruxr D2W List Page

Super Cow | 12345 (D) - Dispo Test 5/10 | GO

netstruxr training

My Homepage | Log Out

NetStruxr Center | Document Center | Administration Center | SERVICEdirect | SPACEdirect

May 11, 2001 12:11 PM PDT

New Project | My Projects | All Projects | Conference Center | Reports | Corporate Direct

Project Control | Project Information | Responses | Calendar | Documents | Discussions | Terms | Lease

My Project List

15 Projects Show 10 items/page Page 1 of 2

Project Name	Project Number	NetStruxr ID	Project Type	Project Status	Occupancy Date	Responses
Dispo Test 5/10		12345	Dsp	Project Created		
Multiple managers.		12328	Acq:Office	Project Created	05/10/2001	
Cheeky	45545454	11802	Acq:Industrial	Market Search	07/16/2001	1
testingNav1		11781	Acq:Office	Market Search	07/13/2001	18
Cool		11773	Acq:Office	Market Search	07/12/2001	
Test	57	11772	Acq	Project Created		
Noti Test 2		11745	Acq	Project Created		
Noti Test		11744	Acq	Project Created		
Industrial Test 3/10		11742	Acq:Industrial	Market Search	07/10/2001	
Test Compare 3/10		11723	Acq:Office	Engage	07/10/2001	2

NetStruxr D2W Wizard Creation Page

Requirement Information

Step 1 of 3

Please provide a **Minimum Size**.
Please provide a **Maximum Size**.
Please provide an **Occupancy Date**.
The **Requested Term** must be greater than zero.

Requested RE Type	Office
* **Minimum Size**	RSF
* **Maximum Size**	RSF
* **Contiguous Space Required?**	Yes ◉ No ○
Will Consider Corporate Subleases	Yes ◉ No ○
Will Consider Corporate Subleases With Shared Space	Yes ○ No ◉
Intended Use Description	
* **Occupancy Date**	(mm/dd/yyyy)
* **Lease Term**	0 year(s) 0 month(s)
* **Rate Unit**	USD/RSF/Year
* **Response Deadline Date**	08/11/2001 (mm/dd/yyyy)

*: Required Field

CANCEL NEXT

NetStruxr Edit Tab D2W Page

Super Cow | - Select Project - | GO | netstruxr Training

My Homepage | Log Out | NetStruxr Center | Document Center | Administration Center | SERVICEdirect | SPACEdirect

May 11, 2001 12:55 PM PDT | Invite Company | Invite User | Edit My Information | Manage Users | Manage My Company | Properties

Edit My Information

General Information | Roles | Preferences

Personal Information

Name	Mr * First Super MI * Last Cow
Title	Big Cow
* Office Telephone	5467
Cellular Number	6546454
Office Fax	
* E-mail	max@netstruxr.com
* Address 1	so
Address 2	Suite 22
* City	San Jose
* State	CA * Postal Code 95134
Agent's Company	unspecified

Identification

* Login Name	cow
	Please note: Both login and password are case sensitive. *We require passwords to be from 6 to 16 characters with at least one numeric character.*
New Password	
Confirm New Password	
* Password Hint	1

*: Required Field | CANCEL | SUBMIT

NetStruxr D2W Tab Inspect Page

Project Information

Here are the features, amenities, related documents, and other general information for the space requirement. To view the project manager, project team, and any project notes for the space requirement, click the **General Information** tab. To view a summary chart of this project's progress, click the **Project Summary** tab.

Project Summary | General Information | **Project Requirement**

General Information

Real Estate Type	Office
Size Range	10 - 1,000 RSF
Contiguous Space Required?	Yes
Will Consider Corporate Subleases	Yes
Will Consider Corporate Subleases With Shared Space	Yes
Intended Uses	R&D
Intended Use Description	looking into direct engage
Occupancy Date	07/30/2001
Lease Term	2 years 6 months
Response Deadline Date	05/14/2001
Comments	
Geographic Location	California

Property Requirements

Building Class	Class A	**Ground Floor Space**	☐	**Enhanced Floor Load Capacity**	☐
Fiber Optics	☐	**Access To Loading Dock**	☐	**Exterior Signage**	☐
Sprinklers	☐	**Redundant Power**	☐	**Interior Signage**	☐
24x7 Electronic Security	☐	**Place For Backup Generator**	☐	**Elevator Signage**	☐
24x7 Manned Security	☐	**Place for Telecom Equipment**	☐		

NetStruxr D2W Tab With Nested D2W Pick Pages

Project Responses

New Responses | Compare Responses

New Landlord Space Responses

1 Response Display 10 items

Offer #	Agents in Team	Property	Size Range	Quoted Rental Rate	Occupancy Date	Lease Term	Response Details	Select
Company: Artefini, 1 Market, San Francisco, CA, 94118								
4084	No	601 Gateway Blvd, #600 South San Francisco CA 94080	1,000 - 1,000 RSF	11.00 USD/RSF/Year	07/25/2001	5 years		

Engage Selected | Reject Selected

New Corporate Space Responses

17 Corporate Responses Display 2 items Page 8 of 9

NetStruxr ID	Agents in Team	Property Address	Size Range	Quoted Rental Rate	Occupancy Date	Lease Term	Shared Space	Offer Details	Select
11823	Yes	Not Disclosed	10 - 1,000 RSF	11.00 USD/RSF/Year	07/16/2001	2 years 3 months	No		
11883	Yes	Not Disclosed	10 - 1,000 RSF	35.00 USD/RSF/Year	07/18/2001	1 year 3 months	No		

Propose To Selected Responses | Reject Selected Responses

Summary

- Direct to Web integrates into the WebObjects development model
- Gives a head start with pre-built functionality
- Default behavior and layout can be customized
- Rules allow new type of customizations
- Direct to Web… RULES!

WebObjects Lab

- Located downstairs in Room K
- Lab hours
  - Monday 12:00pm–6:00pm
  - Tuesday 10:30am–6:00pm
  - Wednesday 10:30am–6:00pm
  - Thursday 10:30am–6:00pm
  - Friday 10:30am–3:30pm

☑ Vote for WebObjects as Best App Server

http://developer.apple.com/webobjects

Roadmap

613 Advanced Enterprise Objects Framework	Room A1 **Thurs., 3:30pm**
614 Advanced Java Client	Room A1 **Thurs., 5:00pm**
FF111 Feedback Forum: WebObjects	Room A1 **Fri., 3:30pm**

Who to Contact

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Bob Fraser
WebObjects Product Manager
webobjects@apple.com

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(800) 848-6398
iservices@apple.com

For more information:
www.apple.com/webobjects
developer.apple.com/webobjects
www.apple.com/iservices
www.info.apple.com/webobjects

Subscribe to:
Webobjects-announce@apple.com

Q&A

Bob Fraser
WebObjects Product Manager
webobjects@apple.com

http://developer.apple.com/events/urls.html

WWDC
Worldwide Developers Conference 2001